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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,996	03/26/2004	Michael T. Harvey	PB 02 0022	9002

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EXAMINER	
SINGH, RAMNANDAN P	

ART UNIT	PAPER NUMBER
2614	

DATE MAILED: 07/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/810,996	HARVEY ET AL.	
	Examiner	Art Unit	
	Ramnandan Singh	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *7-13* is/are allowed.

6)☒ Claim(s) *1-6,14 and 16-20* is/are rejected.

7)☒ Claim(s) *15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 March 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *Aug. 03, 2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Figure 1 shows reference characters: (i) ά and (1- ά) and (ii) gain lookup. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference characters in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Claim 19 recites the limitation " wherein the filter comprises an adder that adds high frequency energy to the downlink signal" in lines 1-2. The "adder" is not shown. A similar thing holds for claims 6 and 13. Further, claim 20 recites the limitation " wherein the filter comprises a subtractor that subtracts low frequency energy to the downlink signal" in lines 1-2. The "subtractor" is

not shown. A similar thing holds for claims 5 and 12. Therefore, the adder/subtractor must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 14 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Chandran et al [US 6,591,234 B1].

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 1, Chandran et al teach a method for improving a downlink signal received by a listener on a phone shown in Fig. 3, comprising:

calculating an environment noise level (308) of the listener; and

filtering (302) and adjusting gain (314) of the downlink signal based on the environment noise level [Figs. 1-4; col. 6, lines 15-47; col. 10, lines 34-37; col. 15, lines 14-28].

Regarding claim 14, Chandran et al teach an apparatus for improving a downlink signal received by a listener on a phone shown in Fig. 3, comprising:

a noise level calculator (308) that calculates an environment noise level of the listener;

a filter (302) that creates a filtered downlink signal; and

a gain controller (314) , coupled to the filter and the noise level calculator, that receives the filtered downlink signal and adjusts gain of the filtered downlink signal based on the environment noise level [Figs. 1-4; col. 6, lines 15-47; col. 10, lines 34-37; col. 15, lines 14-28].

Regarding claim 18, Chandran et al further teach the apparatus, wherein the filter is an IIR filter [col. 6, lines 37-51; col. 8, lines 22-42].

5. Claims 1, 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Heitkamper et al [IEEE Int. Symposium on Circuits and Systems 1993, ISCAS'93, 3-6 May 1993; pages 455-458, Vol.I].

Regarding claim 1, Heitkamper et al teach a method for improving a downlink signal received by a listener on a phone shown in Fig. 1, comprising:

calculating an environment noise level of the listener (i.e. long-term average magnitude of the background noise) [Fig. 1; Section 3: page 457, Equation (3); lines 1-26]; and

filtering (i.e. using first-order recursive filter) and adjusting gain, $g(y_s)$, of the downlink signal based on the environment noise level [Fig. 1; Section 2, page 456, Equation (2), lines 1-24].

Claim 14 is essentially similar to claim 1 and is rejected for the reasons stated above.

6. Claims 1-4, 14 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Trump et al [US 20050004796 A1].

Regarding claim 1, Trump et al teach a method for improving a downlink signal received by a listener on a phone, comprising:

calculating an environment noise level of the listener (26) [Fig. 5; Para: 0030-0031]; and

filtering (i.e. filtering used in peak level detector (32)) and adjusting gain of the downlink signal based on the environment noise level [Figs. 3, 5; Para: 0069-0071; 030-0037; 0019].

Regarding claim 14, Trump et al teach the apparatus for improving a downlink signal received by a listener on a phone, comprising:

a noise level calculator (26) that calculates an environment noise level of the listener;

a filter that creates a filtered downlink signal (i.e. filtering used in peak level detector (32)); and

a gain controller (22), coupled to the filter and the noise level calculator (32), that receives the filtered downlink signal and adjusts gain of the filtered downlink signal based on the environment noise level [Figs. 3, 5; Para: 0069-0071; 030-0037; 0019].

Regarding claims 2-4, Trump et al further teach the method, wherein calculating the environment noise level comprises taking a slow moving average of a noise level of the listener's uplink signal (i.e. from a near-end user)[Fig. 5]; taking a long time average of a noise level of the listener's uplink signal; and then employing a signal averaging technique (i.e. an exponential averaging technique [Para: 0066]) to determine an average of a noise level of the listener's uplink signal [Fig. 5; Para: 0066-0067].

Regarding claim 18, Trump et al further teach the apparatus, wherein the filter is an IIR filter [Para: 0069].

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 5-6, 16, 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trump et al as applied to claim 1 above, and further in view of Allen et al [US 5,524,148].

Regarding claims 5 and 6, although Trump et al teaches a method of designing a peak level detector (32) [Fig. 5; Appendix 3; Para: 0069-0071], they do not teach expressly the method, wherein filtering the downlink signal comprises subtracting low frequency energy (i.e. using a high-pass filter) from the downlink signal, and filtering the downlink signal comprises adding high frequency energy to the downlink signal.

Allen et al teach an alternative method of designing a peak level detector (22) shown in Fig. 2, wherein filtering the downlink signal comprises subtracting low

frequency energy (i.e. removing DC components from the downlink signal using high-pass filter (31)), and further filtering the downlink signal comprises adding high frequency energy to the downlink signal using a low-pass filter (33) based on exponentially mapped past average [Figs. 2-3; col. 5, line 40 to col. 6, line 24].

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the method of designing the peak level detector of Allen et al with Trump et al as an alternative method to the method of Trump et al.

Regarding claims 19-20, the limitations are shown above.

Regarding claim 16, Allen et al further teach the apparatus wherein the filter is a high pass filter (31) [Fig. 3].

9. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Trump et al as applied to claim 14 above, and further in view of Etter [US 20040101038 A1].

Regarding claim 16, Trump et al do not teach expressly using an FIR filter.

Etter teaches using an FIR filter to smooth each master gain value [Para: 0061].

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the FIR filter of Etter with Trump et al to smooth the gain value, G, of Trump et al [Trump et al; Para: 0061].

Allowable Subject Matter

10. Claims 7-13 are indicated allowable.

11. Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter:

Claim 7 identifies the uniquely distinct feature of a method for improving a down link signal received by a listener on a phone, comprising: calculating an environment noise level of the listener; delaying the downlink signal if the environment noise level is less than a first threshold; and filtering and adjusting gain of the downlink signal if the environment noise level is higher than a second threshold. As such, claim 7 requires delaying the downlink signal if the environmental noise level is less than a first threshold; and filtering and adjusting gain of the downlink signal if the environment noise level is higher than a second threshold. Search results indicate that no prior art teaches these limitations. Therefore, claims 7-13 are indicated allowable.

Claim 15 recites the limitations: a delay line, coupled to the gain controller, that creates a delayed downlink signal, wherein the gain controller receives the delayed downlink signal and adjusts gain of the delayed downlink signal based on the environment noise level; and an adder coupled to the gain controller that adds the delayed downlink signal and the filtered downlink signal. As such, claim 15 requires adding the delayed downlink signal and the filtered down link signal. Search results indicate that no prior art teaches these limitations. Therefore, claim 15 is objected to.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramnandan Singh whose telephone number is (571) 272-7529. The examiner can normally be reached on M-TH (8:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang can be reached on (571) 272-7547. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ramnandan Singh
Examiner
Art Unit 2614